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THE VELIGER

The Nudibranch *Halgerda aurantiomaculata* (Allan, 1932) (Doridoidea: Doridiidae) in Fijian Waters

by

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AND

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Abstract. *Halgerda aurantiomaculata* (Allan, 1932) was previously known from shelf waters of Queensland and southeastern Papua New Guinea, but new records from Fiji and the southern Coral Sea (Lord Howe Island and Elizabeth Reef) indicate a considerably larger natural distributional range. An account of the anatomy, particularly that of the gut and reproductive system, of the Fijian specimens is provided and is consistent with that of Queensland material with which it was compared. This comparison, however, brought to light errors in the original description regarding the size, radular formula, and tooth structure of the holotype. The extent of intraspecific color variation within *H. aurantiomaculata* is reported; this variation is apparently continuous. Character states present in *H. aurantiomaculata* are used to test pre-existing criteria for definition of the genus *Halgerda*; five are supported and two are invalidated.

INTRODUCTION

Two specimens of the dorid nudibranch *Halgerda aurantiomaculata* (Allan, 1932) have recently been collected on the southern coast of Viti Levu, the largest island in the Fijian archipelago. Previously *H. carlsoni* Rudman, 1978, was the only *Halgerda* recorded from this area. *Halgerda aurantiomaculata* had formerly only been reported from the shelf waters of Queensland and southeastern Papua New Guinea. Its discovery in Fiji represents a range extension of approximately 2500 km eastwards into the central-west Pacific Ocean.

This identification was confirmed through examination of the holotype of *Dictyodoris aurantiomaculata* Allan, 1932.

During the course of our study of the Fijian specimens, colleagues informed us of two additional, significant records from the southern Coral Sea—from Lord Howe Island and Elizabeth Reef. We examined both animals and can confirm they are *Halgerda aurantiomaculata.*

All measurements of length given in the following description relate to the fully extended crawling state unless otherwise specified.

TAXONOMY

Halgerda aurantiomaculata (Allan, 1932)

(Figures 1–22, 25–32)

Synonymy:

Dictyodoris aurantiomaculata ALLAN, 1932:91, pl. 4, figs. 7, 8, pl. 5, figs. 8–10; KENNY, 1960:225; BURN in Thompson, 1975:515.

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Figure 1

Halgerda aurantiomaculata. First specimen, photographed soon after preservation; length 24 mm. From 24 m, Suva Harbour Channel, Laucala Bay, southern coast of Viti Levu Island, Fiji, 25 June 1987. Photograph: R. C. Willan.

Asteronotus brassica; GILLETT & MCNEILL, 1959, pl. 84—top right; GEORGE & GEORGE, 1979:98, pl. 92, fig. 4 (misidentification—not *Asteronotus brassica* Allan, 1932).

Halgerda aurantiomaculata (Allan); COLEMAN, 1975:129; RUDMAN, 1978:84; ENDEAN, 1982:144, no. 156; BERTSCH & JOHNSON, 1982:217; WILLAN & COLEMAN, 1984:38–39, 52.

Material examined: FIJI: 1 specimen, 24 m, Suva Harbour channel, southern coast of Viti Levu Island, Fiji (18°08′S, 178°25′E), J. Brodie, 25 June 1987; 1 specimen, 11 m, "The Amphitheater," Beqa (=Mbegga) lagoon, southern coast of Viti Levu Island, Fiji (18°24′S, 178°00′E), G. Brodie, 16 January 1988. AUSTRALIA: Holotype, collected intertidally, North West Island, Capricornia Section, Great Barrier Reef, central Queensland (23°18′S, 151°42′E), "Master" Embury, January 1931, The Australian Museum, Sydney, Reg. No. C57208; 22 specimens, from Lizard Island (14°40′S, 145°28′E) to Cape Moreton (27°11′S, 153°24′E), Queensland, 1980 to 1987. LORD HOWE ISLAND: 1 specimen, 10 m, Malabar (31°17′S, 159°05′E), N. Coleman, 28 November 1979, Museum of Victoria, Melbourne, Reg. No. F30126. ELIZABETH REEF, SOUTHERN CORAL SEA: 1 specimen, 20 m, SE outer slope (29°58′S, 159°05.1′E), P. Hutchings, 12 December 1987, The Australian Museum, Sydney, Reg. No. C155069. PAPUA NEW GUINEA: 1 specimen, 15 m, Horseshoe Reef, Port Moresby (9°30′S, 147°10′E), N. Coleman, August 1980, Museum of Victoria, Melbourne, Reg. No. F30127.

DESCRIPTION OF FIJIAN SPECIMENS

(Figures 1–8, 25–27)

The two animals measured 30 and 35 mm long alive, and 24 and 27 mm long respectively after preservation. In life, the body was low in profile and oval in outline; the mantle margins were straight instead of undulating as they were in the freshly preserved animal (Figure 1). The expansive mantle was gelatinous yet firm and it completely lacked spicules. The mantle in both specimens bore 10 prominent, rounded pustules. Four pustules were present along the midline, one (the smallest of all 10) immediately in front of the rhinophores, and three, equally spaced, between the rhinophores and gills. A mid-dorsal ridge connected these pustules and it stopped abruptly at the last pustule, *i.e.*, it did not extend from there to the branchial pocket. Two additional rows, each consisting of three pustules, were present on the flanks of the mantle, one on either side of the median row. Pustules within these lateral rows were arranged symmetrically, both with respect to each other and to the median row; that is, each pustule was displaced one-half the inter-pustule distance of the median row, so that the posterior one was situated in line with the branchial pocket. Both the rhinophoral and branchial pockets had elevated rims with simple margins. The foot was much narrower than the mantle (*i.e.*, the foot of the first specimen measured 3 mm in width against a mantle width of 19 mm in the preserved state). The foot was bilaminate an-

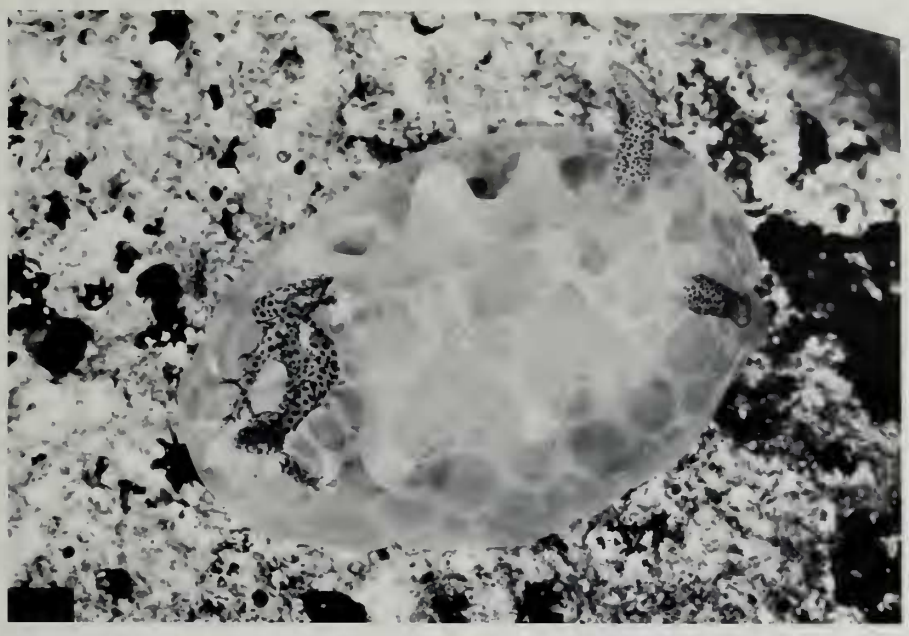


Figure 2

Halgerda aurantiomaculata. Second specimen, photographed live; length 35 mm. From 11 m, "The Amphitheater," Beqa lagoon, southern coast of Viti Levu Island, Fiji, 16 January 1988. Photograph: J. Brodie.

teriorly, the anterior lamina being vertically notched and the posterior lamina transversely grooved in the midline. Short, triangular oral tentacles were present on either side of the head, and there was no indication of a posterior longitudinal groove in the oral tentacles of either specimen. The rhinophores were relatively tall and tapering, the stalk was elongate, and the small, backwardly tilted clavus, which bore about 25 lamellae, was approximately equal in maximum diameter to the base of the stalk. The four gills were sparsely bipinnate, the posterior two being split into two branches from near their base.

The body was opaque white, almost hyaline, and all 10 pustules were capped with a vivid orange spot. Orange streaks marked the summits of the ridges and these intersected to produce two Y- or V-shaped, broad patches transversely on either side of the midline. In addition, orange streaks radiated towards the margin from each lateral pustule. The mantle margin possessed a continuous, narrow, orange line. Orange spots of differing sizes were present on the mantle surface in the flat-bottomed depressions between the ridges; there were three to eight spots in each depression. The rhinophoral stalks and the lamellae on the clavi bore numerous small, rounded, regularly spaced chocolate brown spots, those on the stalk being darker and slightly larger. The base of the branchial pocket and gill rachis also possessed several relatively large, dark chocolate brown spots. The gills themselves were densely pigmented with much smaller brown spots giving a densely speckled appearance. The anal papilla was brown spotted. The foot possessed a continuous orange marginal line. Both the oral tentacles had an orange spot at their apex. Only the second specimen had any orange pigmentation around its genital aperture.

The viscera were surrounded by a thin, translucent tissue envelope which was pale brown because of numerous light brown pigment specks; this sheath was so transparent that the organs of the viscera could be recognized through it. Dorsally, the oesophagus, stomach, rectum, and digestive gland were immediately identifiable when the mantle and this tissue envelope were opened by a mid-dorsal longitudinal incision and folded aside. A composite view of the digestive system is shown in Figure 3. The foregut, which is shown in profile in Figure 3, consisted of a long and muscular oral tube with three prominent extrinsic retractor muscles on either side, a muscular pharyngeal bulb with two posterolateral bulges, an extremely large and curved radular sac, and a thin-walled oesophagus. The two dorsal pairs of retractors originated from the mantle; in fact the uppermost pair originated from the region where the anteriormost pustule in each lateral row was present on the outer surface. The ventral pair of retractors originated from the foot musculature. The large stomach was spherical and thin-walled, and it gave rise to the long intestine anteriorly. The stomach and hindgut are shown in dorsal view in Figure 3. The digestive gland formed a large, ovoid, compact, cream-color mass in the middle of the visceral cavity.

Dissolution of the pharyngeal bulb yielded a lightly

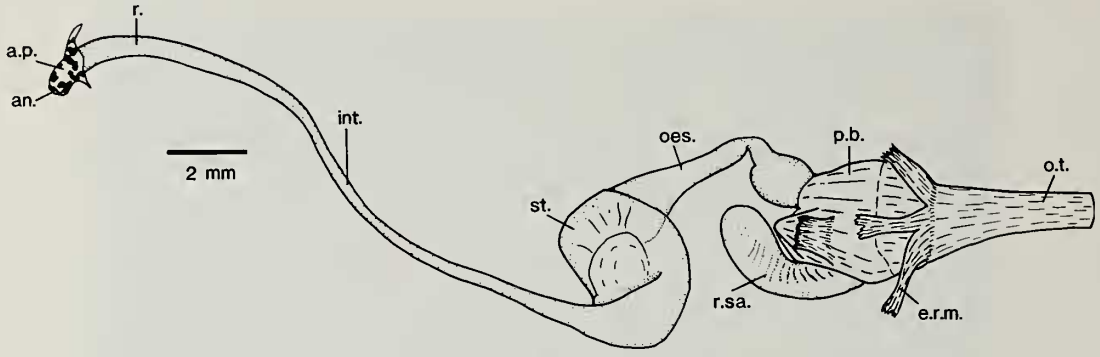


Figure 3

Composite view of structure of alimentary canal of Fijian *Halgerda aurantiomaculata* (digestive gland omitted). Abbreviations: an., anus; a.p., anal papilla; e.r.m., extrinsic retractor muscle (lowest of three indicated); oes., oesophagus; int., intestine; o.t., oral tube; p.b., pharygeal bulb; r., rectum; r.sa., radular sac; st., stomach.

cuticularized labial ring and a broad, elongate radula, but no jaws. The radulae of the two specimens measured 4.9 and 6.2 mm long by 3.6 and 4.8 mm in maximum width respectively when spread out and laid flat on slides. The radular formulae were 50 × 51·0·51 and 48 × 47·0·47 respectively. The radular teeth were numerous and crowded together, and all possessed a simple, hooked form. The innermost 20 to 25 teeth (Figure 25) had short, broad blades arising from very elongate basal plates; the row of basal plates was inclined at a steep angle to the midline of the radula; these teeth were relatively minute, with vertical height increasing progressively from a minimum of 12 μm at tooth number 1. Middle (Figure 26) and outer lateral teeth were arranged in straight rows; all these teeth were alike, consisting of a relatively tall (average vertical height 145 μm), gently curved cusp and narrow, almost rectangular basal plate. All the lateral teeth possessed a strong flange from the base to about halfway up the blade on the inner margin. The five outermost teeth in a row decreased rapidly in size, and there were one or two ad-

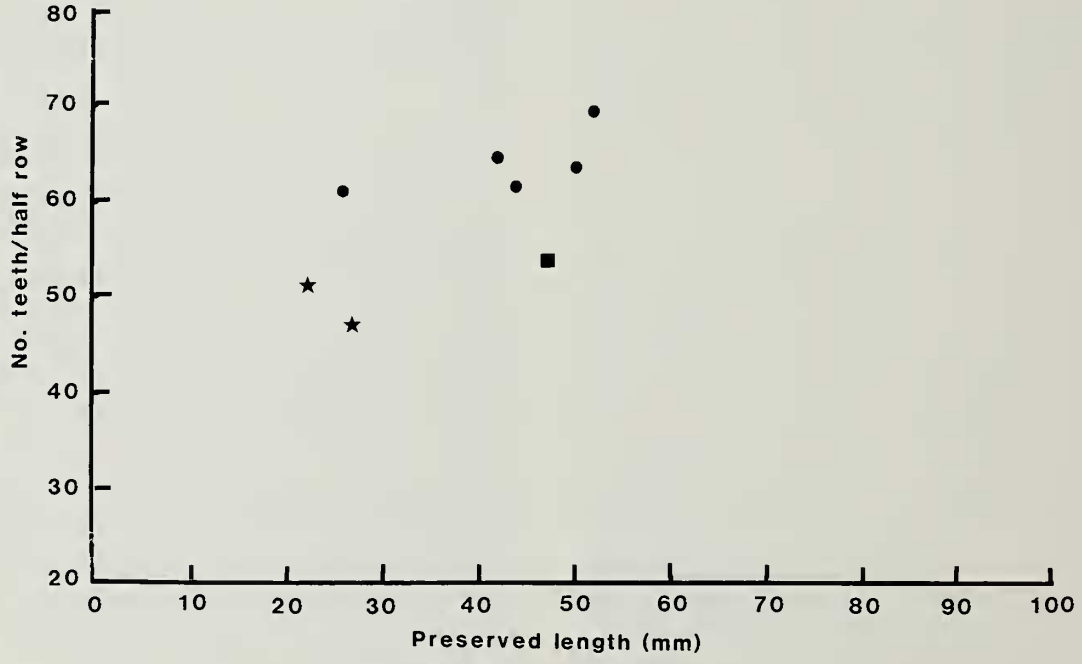


Figure 4

Halgerda aurantiomaculata. Graph showing relationship between preserved length and number of teeth per half row. Data points from five Queensland specimens (●), holotype (■), and two Fijian specimens (★).

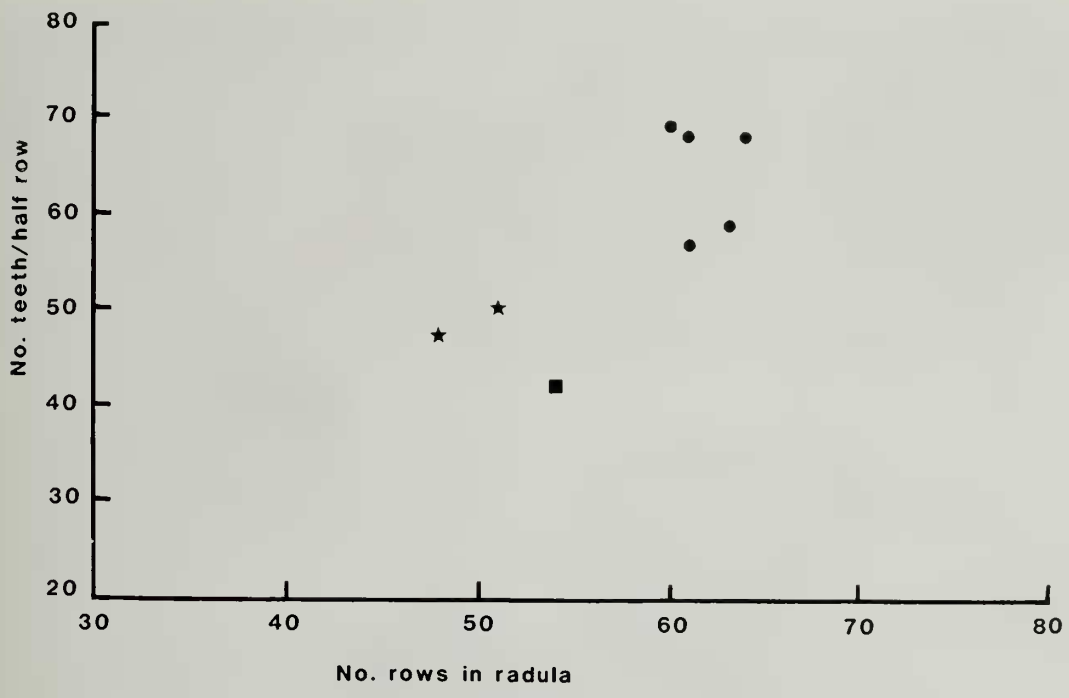
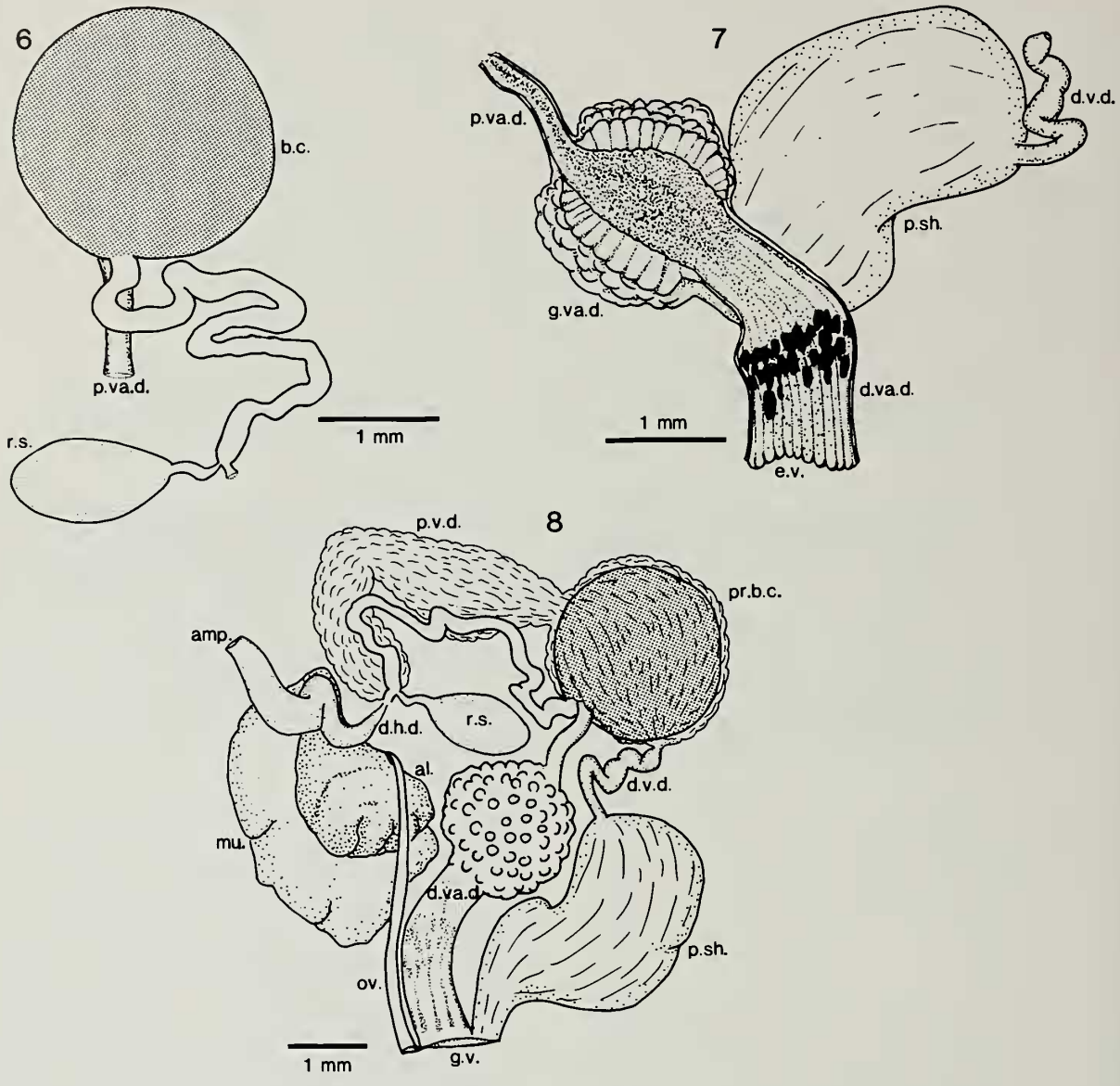


Figure 5

Halgerda aurantiomaculata. Graph showing relationship between number of rows in radula and number of teeth per half row. Same symbols for data points as in Figure 4.

ditional much reduced, extreme outer laterals in most rows. Of these reduced outermost laterals, the extreme outermost tooth (number 51) was deeply, and the two teeth next to that (numbers 49 and 50) weakly, bifid on both halves of the radula of one (Figure 27), but not the other, Fijian specimen's radula.

The triaulic reproductive system consisted of a relatively small anterior genital (strictly gonoducal) mass compared to the entire visceral space. The only organ prominent dorsally was the prostate-ensheathed bursa copulatrix, this organ being located below, and to the right of, the oesophagus. The large, bright orange-yellow ovotestis overlaid the digestive gland dorsally in the posterior half of the visceral cavity and developing ova were clearly visible within the ovotestis. The relatively short ampulla left the ovotestis and passed almost directly to the anterior genital mass which it entered beside the nidamental glands. Within the anterior genital mass, it gradually narrowed into an hermaphroditic duct which was connected to the bursa copulatrix and prostate gland, but these connections were so fine they could not be traced without sectioning. The duct to the bursa was long and sinuous, and a smaller, thicker-walled, clublike receptaculum seminis arose by a short and narrow stalk exactly at the point this duct entered the nidamental glands. The bursa (Figure 6) itself was spherical, thin-walled, and filled with brown flocculent material; it was approximately equal to the penial sheath in size. A thin-walled proximal vaginal duct left the bursa, suddenly dilated into an obvious, lobular, glandular middle section, and passed to the exterior via a relatively long, broad, distal vaginal duct. Internally, the distal vagina possessed about 12 strong, longitudinal ridges and a conspicuous superficial band of chocolate brown spots (Figure 7). The vas deferens enlarged immediately upon leaving the hermaphroditic duct into a white, lobulate, prostatic proximal section that was both folded once back upon itself and compressed between the nidamental glands and penial sheath. The central section of the vas deferens remained enlarged and lobulate, and it entirely ensheathed the bursa except for a small area where the hermaphroditic duct and proximal vaginal duct entered side by side. The vas deferens darkened from white to pale brown immediately prior to its distal section. Distally, the vas deferens narrowed rapidly and was somewhat sinuous before it entered the large, muscular penial sheath. There was no penial armature. Although the distal vagina and ejaculatory duct opened into a common vestibule, they both possessed completely separate canals. Two separate glands could be discerned within the nidamental mass: a smaller, more solid, creamish albumen gland and a larger, white mucus gland. In the retracted state, the oviduct opened at the genital aperture immediately behind the vestibule of the vagina and ejaculatory duct. Figure 8 illustrates a composite view of the structure of the unravelled reproductive organs.



Explanation of Figures 6 to 8

Reproductive system of Fijian *Halgerda aurantiomaculata.*

Figure 6. Detail of seminal receptacles (prostate gland removed from outside of bursa copulatrix).

Figure 7. Detail of vagina and terminal male tract (vagina opened longitudinally throughout its length to show internal structures; penial sheath not removed).

Figure 8. Composite view of structure of reproductive organs.

Abbreviations: al., albumen gland; amp., ampular region of hermaphroditic duct; b.c., bursa copulatrix; d.h.d., distal hermaphroditic duct; d.va.d., distal vaginal duct; d.v.d., distal vas deferens; e.v., entrance to vagina; g.va.d., spherical, glandular central section of vagina; g.v., genital vestibule; mu., mucus glands, ov., oviduct; pr.b.c., central section of prostate gland ensheathing bursa copulatrix; p.sh., penial sheath; p.va.d., proximal vaginal duct; p.v.d., proximal vas deferens; r.s., receptaculum seminis.

COMPARISON WITH EASTERN AUSTRALIAN SPECIMENS

To confirm the identity of the Fijian *Halgerda* specimens, it was necessary to check them against material of *H. aurantiomaculata* from eastern Australia, not only to fill gaps in ALLAN's (1932) original description, but also to consider intraspecific variation. The results of this examination and comparison are given below under five subheadings. This consideration has been extended to cover what is now known of other tropical Indo-Pacific *Halgerda*

species (Rudman, 1978; Bertsch & Johnson, 1982; Willan & Coleman, 1984; Gosliner, 1987).

External Morphology

All specimens of *Halgerda aurantiomaculata* possess the same oval outline and gelatinous yet firm mantle texture. Adults can attain 70 mm maximum crawling length. The holotype measures 47 mm preserved, not 77 mm as erroneously stated in the original description. There is apparently no variation in arrangement of the 10 large pustules or system of semi-interconnecting ridges. As Bertsch & Johnson (1982) noted, the median row of four pustules with their low connecting ridge is specifically characteristic for *H. aurantiomaculata*. The only intraspecific differences we noted were the relative heights of pustules within and between individuals. Sometimes all the pustules are very pronounced (Figures 11, 14, 20–22) and sometimes they are all low (Figures 13, 15, 17, 18). The anteriormost pustule in the median set is generally lower than the three others, or it may be barely present at all (see Figure 2 for example).

Of the other described species of tropical Pacific *Halgerda,* only *H. carlsoni* Rudman, with type locality of Fiji, has similar shape and ornamentation. However that species (Figures 23, 24) possesses about 40 additional pustules of varying size connected into the major pustule and ridge system on the mantle. In *H. carlsoni* there are fewer, larger, chocolate spots on the rhinophoral stalk and clavus. Both *H. aurantiomaculata* and *H. carlsoni* have similar rhinophores consisting, when fully extended, of a tall stalk that is approximately equal in diameter to the maximum diameter of the elongate, tapering clavus (Figures 13 and 23 respectively).

Coloration

The extent of intraspecific color variation present within *Halgerda aurantiomaculata* has not been understood previously. Figures 9 to 22 depict this variation in eastern Australian material. "Typical" specimens (*i.e.,* those matching the holotype) have about 100 rich-orange spots on the mantle. Figure 10 illustrates a specimen like this. Not only does the number of spots vary, but so does their size; some individuals have large spots that nearly coalesce to leave only small translucent white "pathways" between them (Figures 12, 16), while others, particularly juveniles, are predominantly translucent white with much smaller spots (Figures 17, 18, 22). The summits of all 10 pustules are always orange. The ridges connecting the pustules, as well as those radiating from the two lateral rows of pustules, are usually capped by an orange streak that can be either wide or narrow. When they are wide, they resemble the spots on the rest of the mantle (Figures 12, 13, 16), and this is the case with the second Fijian specimen (Figure 2). When they are narrow, they create a distinctly geometric appearance. The first Fijian specimen is like this (Figure 1) as is one specimen from Heron Island, southern Great Barrier Reef (Figure 20). This latter animal is interesting because it has very few orange spots. This streaked morph, then, appears to represent one end point to the range of coloration. Color variation seems to be continuous between all morphs, but the streaked morph appears to be the rarest.

Halgerda carlsoni Rudman, *H. terramtuentis* Bertsch & Johnson, and the undescribed Queensland species illustrated by Willan & Coleman (1984:species number 117) all also possess orange caps to the pustules but lack the additional large spots on the mantle as found in *H. aurantiomaculata.*

Alimentary Canal

The gut of the Fijian specimens (Figure 3) was identical in all respects to that of two Queensland animals dissected to reveal this system. The most characteristic regions were the elongate and unspotted oral tube, enlarged and curved radular sac, posteriolateral bulges to the pharyngeal bulb, large dorsal stomach, and brown-spotted anal papilla.

It is impossible to decide from literature whether all these characteristics relating to the gut hold true just for this species or whether they are to be found in all species of the genus. Rudman (1978:83–84) indicated that the enlarged, curved radular sac and large stomach were typical of the genus. However, he also suggested that the tissue envelope surrounding the viscera should be very dark brown or black in all species of *Halgerda* (Rudman, 1978:83), but it is, in fact, translucent in at least two species, *H. carlsoni* (Rudman, 1978:83) and *H. aurantiomaculata* (present observations).

Radula

The radula of the Fijian specimens (Figures 25–27) is identical to that of the five Queensland specimens (Figures 28–32) whose radula we prepared for examination. The majority of radular teeth are simple with an apical cleft occurring in the reduced outermost marginals in most specimens. This cleft was absent in one Fijian and one Queensland (Figure 32) specimen.

In her description, Allan (1932) stated that the teeth were "slightly denticulate" but she illustrated three simple teeth (Allan, 1932:pl. 5, fig. 10), the two on the left being superimposed (and resembling incompletely cuticularized ones from the growing end of the radula). It seems likely that Allan misinterpreted these two simple teeth as one single, denticulate tooth because there is no indication of denticles on any tooth in her illustration.

The matter of observation of the structure of the teeth is not the only anomaly in Allan's (1932) original description of the radula of *Halgerda aurantiomaculata.* For an animal its size, the radular formula given by Allan of 42 × 54·0·54 is consistently below that of all the other specimens we examined (Figures 4, 5). Our re-examina-

tion of the holotype provided an explanation. Its buccal mass was never treated to isolate the radula, but the buccal mass had been sagittally sectioned instead. Therefore the radula remains in place on the muscular odontophore, but the elongate radular sac had been cut off posteriorly. We assume the radular sac had been accidentally excised during removal of the buccal mass. Consequently, Allan's formula fails to take account of the rows of teeth in the radular sac. We stained the entire buccal mass of the holotype while still *in situ* and were able to count approximately 60 teeth in each half row.

Reproductive System

The Fijian specimens exactly matched the three Queensland specimens that we dissected in all the characters of the reproductive system except that, being smaller in overall body length, the ovotestis overlaid only a smaller section of the digestive gland.

The reproductive system appears to offer a great many comparative characters, at both specific and generic levels. The most distinctive features in the reproductive system of *Halgerda aurantiomaculata* are to be found within the

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Explanation of Figures 9 to 16

Variation in *Halgerda aurantiomaculata.*

Figure 9. Length 68 mm. From 10.5 m, Flinders Reef, north of Cape Moreton, southern Queensland, 31 March 1984. Photograph: R. C. Willan.

Figure 10. Length not recorded. From 9 m, Wistari Reef, Great Barrier Reef, central Queensland, July 1980. Photograph: K. Tubbenhauer.

Figure 11. Length not recorded. From 12 m, Heron Island, Great Barrier Reef, central Queensland, August 1978. Photograph: J. C. Paterson.

Figure 12. Length 59 mm. From 9 m, Fantome Island, Palm Isles Group, northern Queensland, 23 March 1982. Photograph: R. C. Willan.

Figure 13. Length 42 mm. From 21 m, Lady Musgrave Island, southern Queensland, April 1986. Photograph: C. Buchanan.

Figure 14. Length not recorded. From 7 m, Brittomart Reef, Great Barrier Reef, northern Queensland, 29 November 1984. Photograph: D. J. Brunckhorst.

Figure 15. Length 60 mm. From 12 m, Lady Musgrave Island, southern Queensland, April 1986. Photograph: C. Buchanan.

Figure 16. Length 41 mm. From 9 m, Wistari Reef, Great Barrier Reef, central Queensland, 3 September 1983. Photograph: R. C. Willan.

Explanation of Figures 17 to 24

Variation in *Halgerda* species.

Figure 17. *H. aurantiomaculata.* Length 21 mm. From 10.5 m, Heron Island, Great Barrier Reef, central Queensland, 15 November 1980. Photograph: R. C. Willan.

Figure 18. *H. aurantiomaculata.* Length 21 mm. From 9 m, Flinders Reef, north of Cape Moreton, southern Queensland, 23 August 1980. Photograph: R. C. Willan.

Figure 19. *H. aurantiomaculata.* Length 58 mm. From 7.5 m, Wistari Reef, Great Barrier Reef, central Queensland, 6 July 1981. Photograph: R. C. Willan.

Figure 20. *H. aurantiomaculata.* Length not recorded. From Heron Island, Great Barrier Reef, central Queensland, December 1981. Photograph: N. Coleman.

Figure 21. *H. aurantiomaculata.* Length 66 mm. From 6 m, Wistari Reef, Great Barrier Reef, central Queensland, 30 November 1987. Photograph: D. J. Brunckhorst.

Figure 22. *H. aurantiomaculata.* Length 64 mm. From 10 m, Heron Island, Great Barrier Reef, central Queensland, 28 November 1987. Photograph: D. J. Brunckhorst.

Figure 23. *H. carlsoni,* paratype. Length not recorded. From 3 to 6 m, Admiralty Island, Bay of Islands, Suva Harbour, Viti Levu Island, Fiji, 13 February 1974. Photograph: B. Carlson.

Figure 24. *H. carlsoni.* Length 48 mm. From 18 m, Nukubuco (=Sandbank) Channel, Main Suva Reef, Laucala Bay, Suva, Viti Levu Island, Fiji, 20 November 1987. Photograph: J. Brodie.

Explanation of Figures 25 to 32

Radula of *Halgerda aurantiomaculata.*

Figure 25. SEM of innermost lateral teeth of Fijian specimen; note elongate area of attachment to basal plate and flange on inner margin of blade. Bar = 0.05 μm.

Figure 26. SEM of middle lateral teeth from Fijian specimen. Bar = 0.1 μm.

Figure 27. SEM of outer edge of radula from Fijian specimen; note apical cleft on extreme outermost lateral teeth. Bar = 0.05 μm.

Figure 28. SEM of innermost lateral teeth of 55-mm Queensland specimen. Bar = 0.05 μm.

Figure 29. SEM of middle teeth from 55-mm Queensland specimen; note strong flange on inner proximal margin of blade. Bar = 0.1 μm.

Figure 30. SEM of outermost lateral teeth from 55-mm Queensland specimen; note apical cleft. Bar = 0.05 μm.

Figure 31. SEM of middle lateral teeth from 59-mm Queensland specimen. Bar = 0.1 μm.

Figure 32. SEM of outer edge of radula from 59-mm Queensland specimen; note absence of apical cleft on extreme outer lateral teeth. Bar = 0.05 μm.


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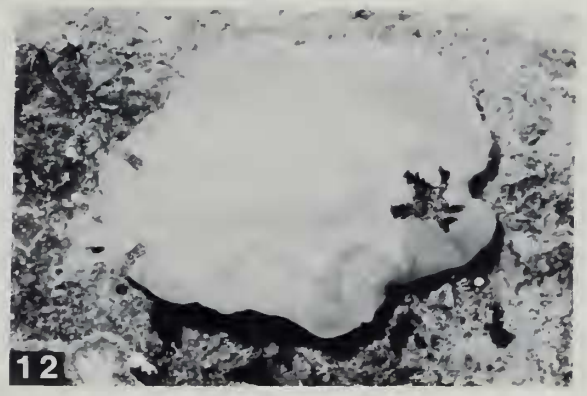
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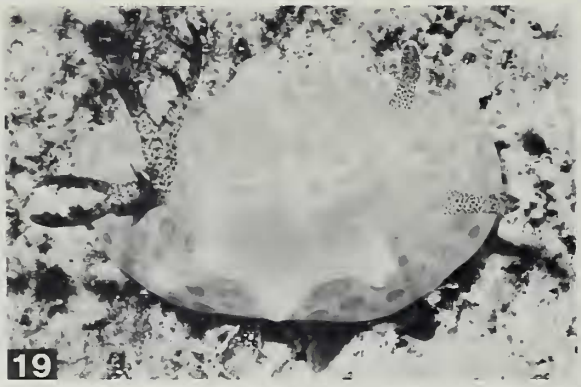
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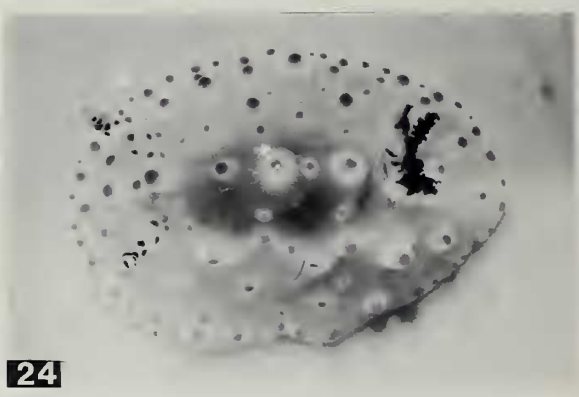
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vagina, *i.e.,* the longitudinal ridges and band of spots distally, and the lobulate glands medially. Nothing like this regional specialization has been reported previously for any other species of *Halgerda.*

By determining that the central region of the prostatic vas deferens completely ensheaths the bursa copulatrix in *Halgerda aurantiomaculata,* we have confirmed a generic character put forward by RUDMAN (1978:84) in his review of the genus *Halgerda.* This character would now appear to be the major internal autapomorphy for the entire genus. The other generic characters that this study has confirmed are those of mantle texture, sparsely pinnate gills, and elongate and curved radular sac. The tissue envelope that encases the viscera is very pale, translucent brown in *H. carlsoni* and *H. aurantiomaculata* (see above), contradicting the claim of it being very dark brown or black in species of *Halgerda.* Furthermore, these two species share relatively long, tapering rhinophores with a small clavus approximately equal in maximum diameter to the base of the stalk. RUDMAN (1978:83) indicated that all species of *Halgerda* possessed short, broad clavi. We doubt the color of the tissue envelope or proportions of the rhinophores are distinctive characters of the genus *Halgerda.*

GEOGRAPHICAL DISTRIBUTION

The Fijian specimens described above represent a range extension of approximately 2500 km eastwards. Previously, *Halgerda aurantiomaculata* had been recorded from throughout Queensland (coastal and Great Barrier Reef) and southeastern Papua New Guinean waters (WILLAN & COLEMAN, 1984). The southernmost record within this known range was a specimen collected by one of us (R.C.W.) at Flinders Reef, north of Cape Moreton in southern Queensland. Confirmation of this nudibranch's presence even further south, in the southern Coral Sea, comes by way of specimens from Elizabeth Reef and Lord Howe Island, one animal from each location.

Extensive field work along the northern New South Wales coastline (by experienced divers based at Coffs Harbour) and in the Madang Province on the northern coast of Papua New Guinea (by R.C.W. and T. M. Gosliner) have failed to reveal *Halgerda aurantiomaculata,* so we have reason to conclude its northern and southern limits coincide with those of the Coral Sea. We cannot presently explain its apparent absence in New Caledonia or Vanuatu, both island nations whose waters lie between northeastern Australia and Fiji.

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